LETTER TO THE EDITOR

Response to the comments by Mr. William Minervini on "Organism Detection in Permeable Pavement Parking Lot Infiltrates at the Edison Environmental Center, New Jersey"

By Ariamalar Selvakumar and Thomas O'Connor

The commenter mostly questions the validity of the curb cut runoff samples which relied on preprograming of automatic samplers and does not dispute the results or conclusions of the infiltrate study through the permeable surfaces which is the main emphasis of the study. As discussed in the paper, the sampling interval was set using the forecasted storm duration from the National Weather Service. It can be difficult to get stormwater samples that are representative of the total storm duration as it depends on weather patterns which can change rapidly. Programming of automatic samplers is even more difficult during short duration events. Mr. Minervini even acknowledges the difficulties in the use of autosamplers.
The objective of runoff sampling from an impervious surface was to have representative sampling of runoff for comparison to permeable pavement infiltrate for events that produced enough volume to sample. Also, it was never claimed curb cut runoff values were absolute, just representative. Our mean values are within the range reported in the literature (Ahmed et al., 2019). It should also be noted that sampling was done for research purposes only and not for regulatory permits. The authors have been doing this kind of research for a long time and have previously used exceptions to regulatory framework for indicator organism sampling, i.e. exception to holding time, to publish research in the past (Selvakumar et al., 2004).

The authors agree that it may have been overly conservative to use default values of <1 MPN/100 mL when no sample was collected in one of the curb cuts and used to calculate the average of two runoff values. This could be recalculated; however, it will not change either the order of magnitude or the results significantly. Even then, it will only slightly increase stated removal. At the other end of the spectrum, it is also conservative to replace >24,196 MPN/100 mL with 24,196 MPN/100 mL for calculation purposes.

Authors agree that it may have been an oversight not to mention in the article that grab samples were taken for an event when an automatic sampler was not triggered. Bacterial enumeration was within normal range and within an order of magnitude to other curb cut samples and hence it was included in the analysis.

For the effect of weather, only the first 13 sampling events were used. This was an oversight of preparing this particular graph prior to completion of all sampling events. It will not change the conclusions for this particular data set as the rain depth does not appear to have had any effect on the observed concentrations of organisms. Secondly, total rainfall was more appropriate rather than rainfall up to the sample collection as the total rainfall was what was driving infiltrate volume through the permeable surfaces.

Finally, authors do not agree with the commenter about erroneously calculating the event temperature. Our data were based on the calibrated weather station data collected at the facility. Mean temperature calculated from the weather data for the whole event was used. It is not evident how the commenter calculated his values.

We thank Mr. Minervini for his inquiry into our paper and WER for allowing us to respond.

References

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Disclaimer

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